

003786/PDD/CMP/RKK

HIGH THROUGH-PUT CU CMP WITH SIGNIFICANTLY REDUCED
EROSION AND DISHING

Abstract of the Disclosure

High through-put Cu CMP is achieved with reduced erosion and dishing by a multi-step polishing technique. Deposited Cu is polished with fixed abrasive polishing pads initially at a high removal rate and subsequently at a reduced removal rate and high Cu:barrier layer (Ta) selectivity. Embodiments of the present invention include reducing dishing by: controlling platen rotating speeds; increasing the concentration of active chemicals; and cleaning the polishing pads between wafers. Embodiments also include removing particulate material during CMP by increasing the flow rate of the chemical agent or controlling the static etching rate between about 100Å and about 150Å per minute, and recycling the chemical agent. Embodiments further include flowing an inhibitor across the wafer surface after each CMP step to reduce the static etching rate.